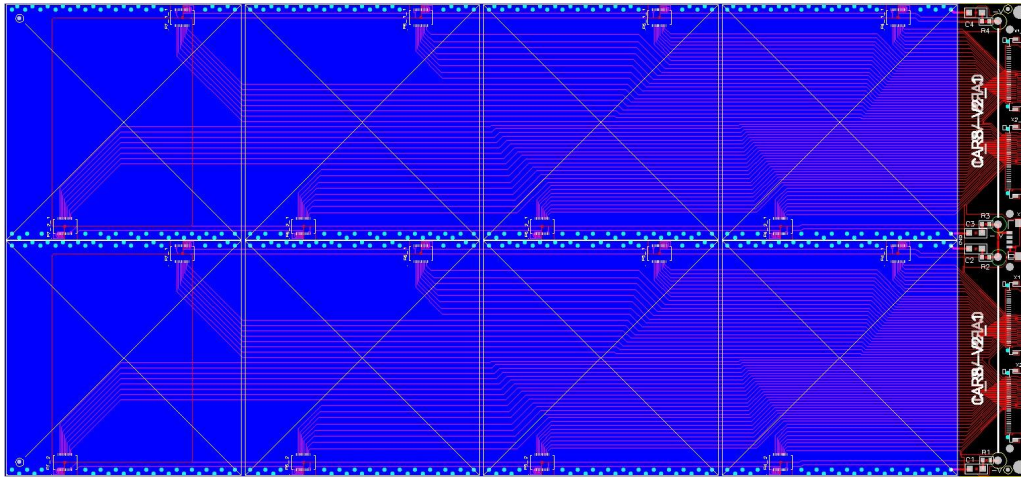
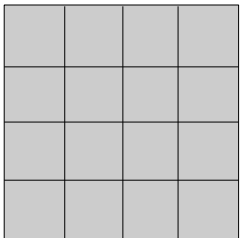


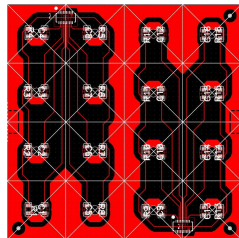
Components of the ProtoBrick



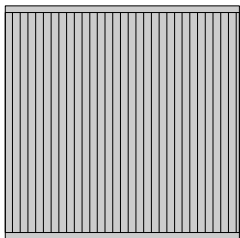
CAR8



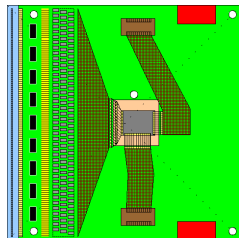
Pad Sensor



INTC
Interconnect
board on top of the
sensor



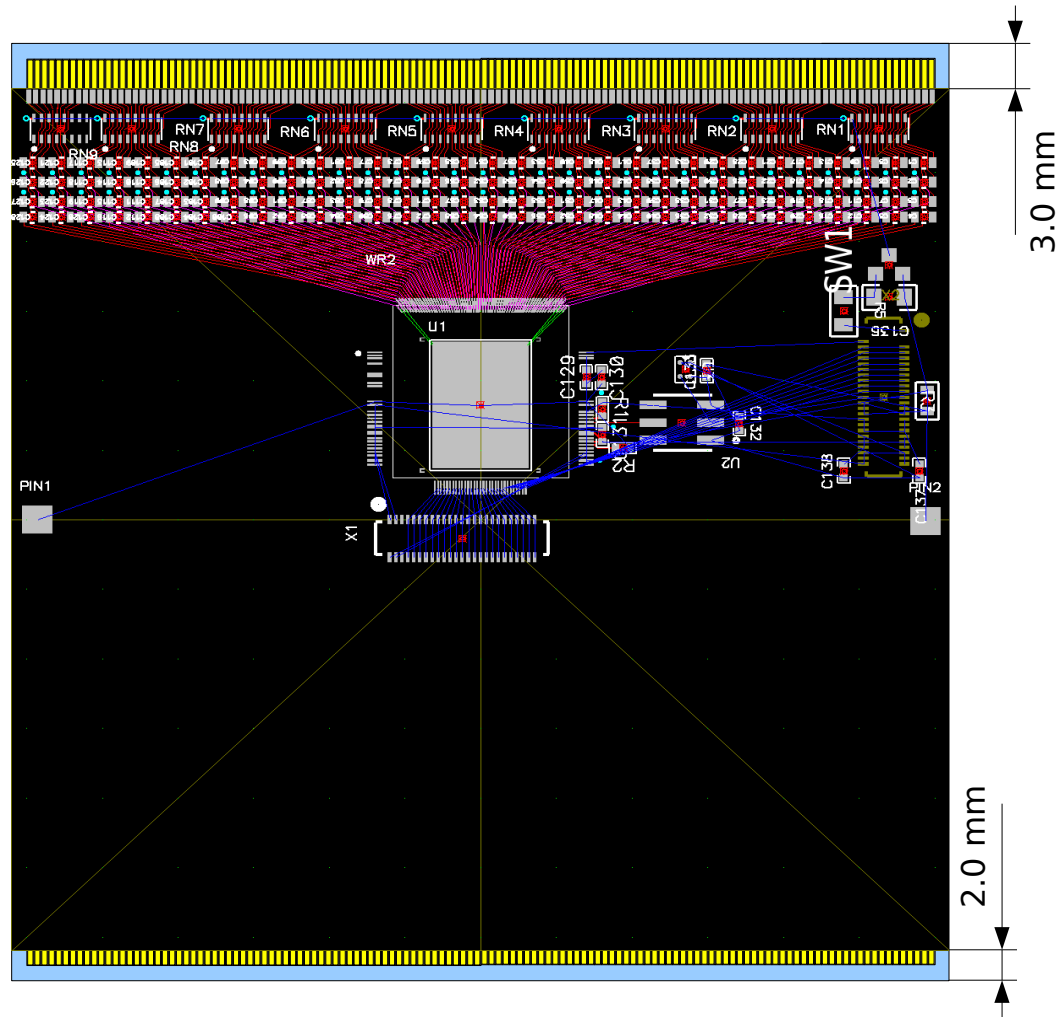
Strip Sensor



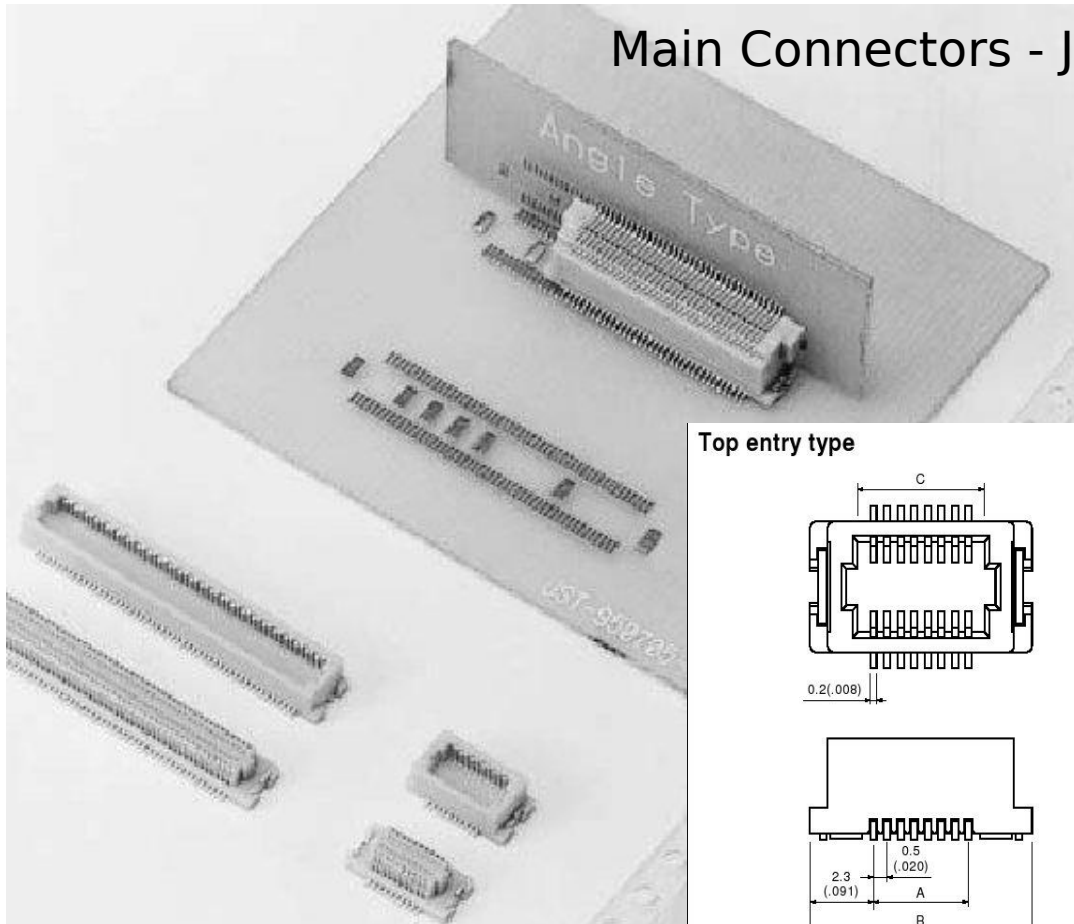
SpRC
Readout Card
with SVX4 chip

Strip Readout Card Mounted on the Sensor

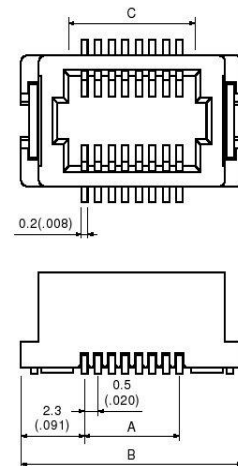
Scale 2:1



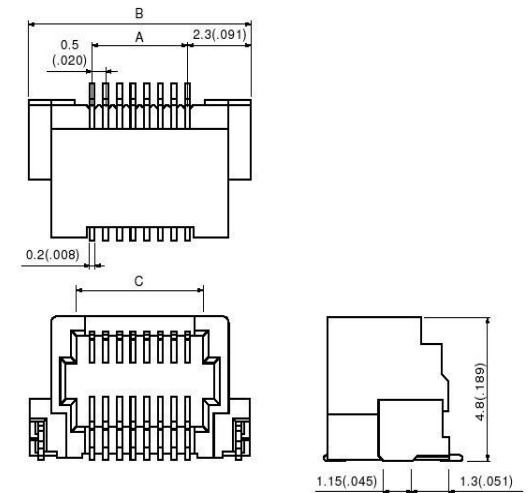
Main Connectors - JMDSS



Top entry type



Side entry type

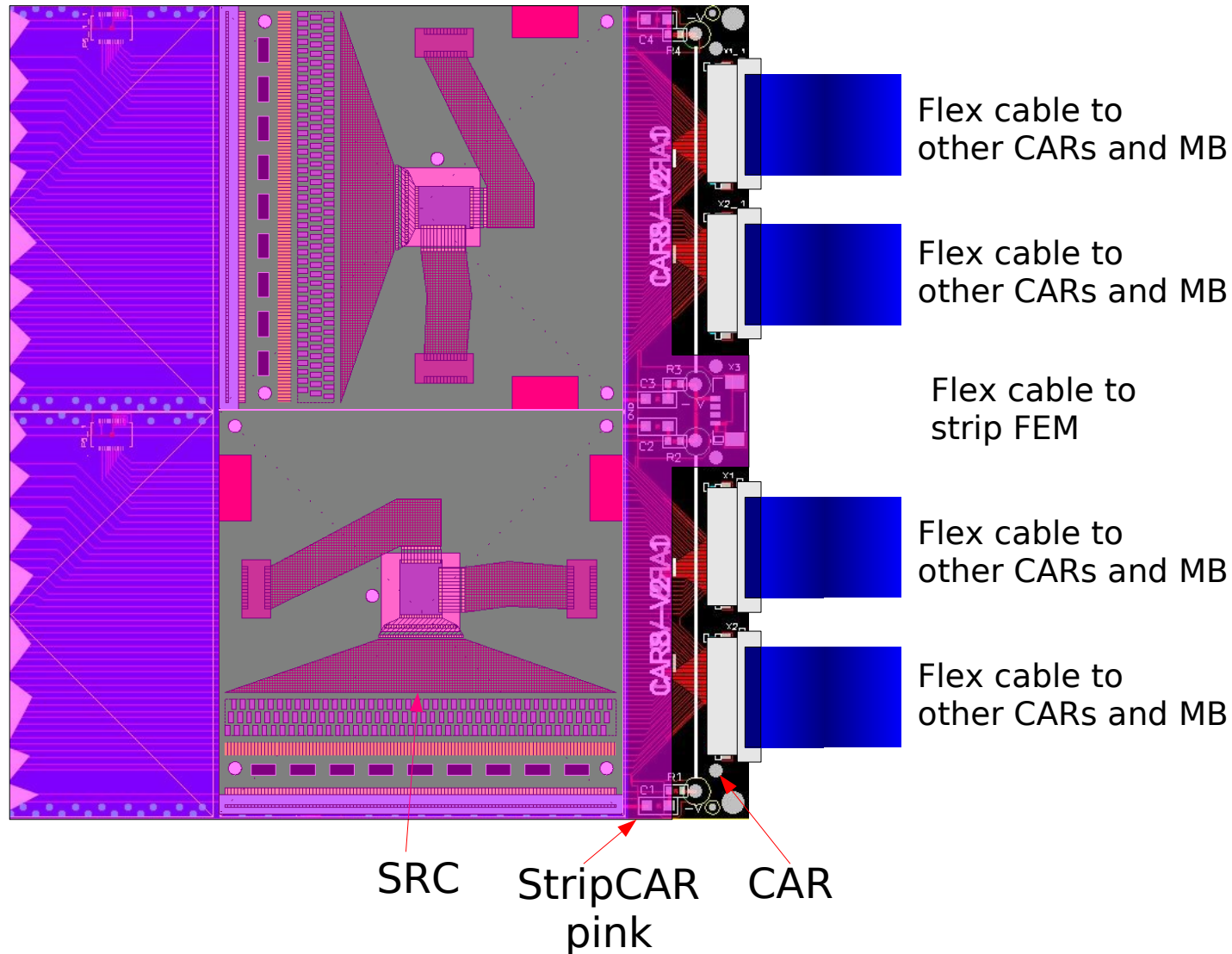


Circuits	Model No.				Dimensions mm(in.)			Qty / reel
	Top entry type			Side entry type	A	B	C	
	4.5mm (.177")	5.0mm (.197")	6.0mm (.236")					
20	20P-JMDSS-G-1-TF	—	—	20PS-JMDSS-G-1-TF	4.5(.177)	9.1(.358)	5.7(.224)	1,500
30	—	30P5.0-JMDSS-G-1-TF	—	30PS-JMDSS-G-1-TF	7.0(.276)	11.6(.457)	8.2(.323)	1,500
40	40P-JMDSS-G-1-TF	40P5.0-JMDSS-G-1-TF	—	40PS-JMDSS-G-1-TF	9.5(.374)	14.1(.555)	10.7(.421)	1,500
50	50P-JMDSS-G-1-TF	—	50P6.0-JMDSS-G-1-TF	50PS-JMDSS-G-1-TF	12.0(.472)	16.6(.654)	13.2(.520)	1,500
60	60P-JMDSS-G-1-TF	—	60P6.0-JMDSS-G-1-TF	60PS-JMDSS-G-1-TF	14.5(.571)	19.1(.752)	15.7(.618)	1,500
70	70P-JMDSS-G-1-TF	—	70P6.0-JMDSS-G-1-TF	70PS-JMDSS-G-1-TF	17.0(.669)	21.6(.850)	18.2(.717)	1,500
80	80P-JMDSS-G-1-TF	—	—	80PS-JMDSS-G-1-TF	19.5(.768)	24.1(.949)	20.7(.815)	1,500
100	100P-JMDSS-G-1-TF	—	—	100PS-JMDSS-G-1-TF	24.5(.965)	29.1(1.146)	25.7(1.012)	1,500

Material and Finish

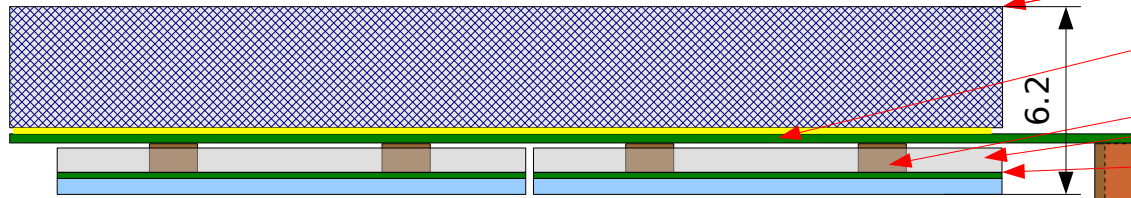
Contact: Phosphor bronze, gold-plated
Housing: Polyamide, UL94V-0
Solder tab: Brass, copper-undercoated, tin/lead-plated

Outline of the StripCAR – the Carrier Board for Strips



Elements of the Pad Sensors

Y Scale 4:1
X Scale 1:1

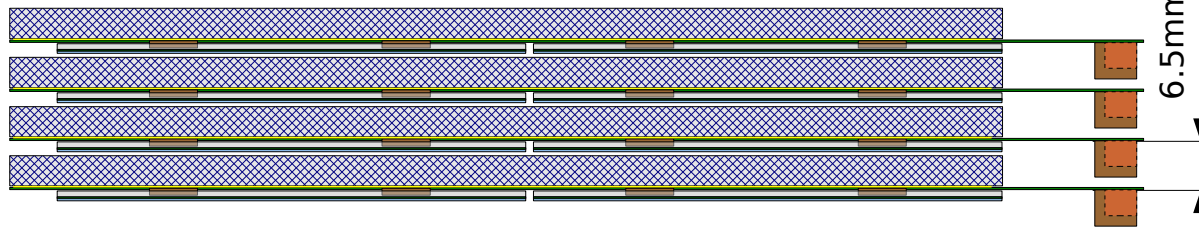


- Tungsten 4.0mm
- Glue 0.2mm
- Carrier board 271x125x0.3mm
- Connector DF30, 0.9mm
- Spacer 62x62x0.8mm
- Interconnect 62x62x0.2mm
- Conn. Molex 53261 3.4mm
- Conn. 60PS-JMDSS, 4.8mm
- Sensor 62x62x0.525mm

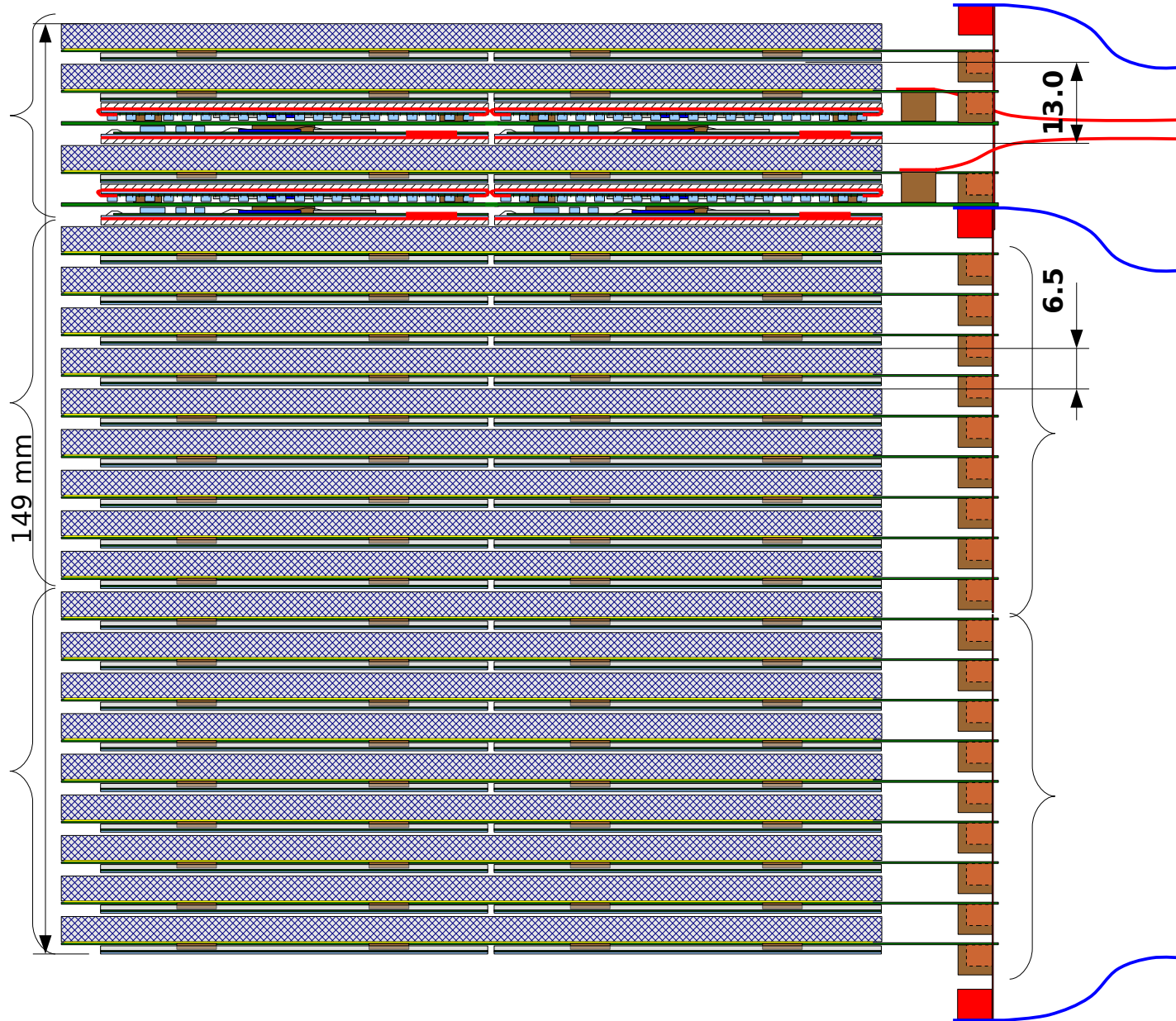
Total: 6.125mm

Y Scale 1:1
X Scale 1:1

Stack of four ladders



Calorimeter Stackup



11/25/08 Protobrick Construction and Preparation for the Beam Test

#	Item	Description	Need	in hands	To Order	Cost	Notes	Design	Fabrication	Assembly
Pads										
1	PMMtester	Pads carrier board for testing	4		4	\$700		30% BNL	0%	0%
2	CAR8v2	Pads carrier board for EM1&2	21	15	11	\$3,500	Decided that all CAR8 should be the same length	100%	60%	60%
3	CAR10v2	Pads carrier board for HAD	0	8	0					
4	INTC	Interconnect	240	240	0		Finally delivered!	100%	100%	100%
5	Foil	Gold plated foil	1m ²		1m ²	\$200	One sheet is in Dubna, good for 180 INTC. Additional sheet is in preparation	N/A	N/A	50%
6	Spacer	Ceramic spacer	240	300	0	\$500		100%	100%	100%
7	Cover	Thin PCB 62x62x0.2mm	168		0	\$200	Fabricated at Dubna	0%	100%	100%
8	MicroModule	Sensor + INTC + Spacer + Cover	240				Assembly started at Dubna	100%	100%	5%
9	Summing Cable EM0	Backplane flex boards (3 SC)	6		6	\$700		0% Dubna	0%	0%
10	Summing Cable EM1,2	Backplane flex boards (9 SC)	12		12	\$1,000		0% Dubna	0%	0%
11	FlexCables	Flex cables with JMD connectors	>12	90	30	\$1,500	Need staffing	100%	100%	10%
12	PAMP-4K	Current preamps with gain 4 Kohm	40	28	28	\$800	Single panel	100%	50%	50%
13	PAMP-40K	Current preamps with gain 40 Kohm	20		28	\$800	Single panel	100%	2%	2%
14	MBPAMP	Motherboard for preamps	>6	6	0		Connectors press-fit needed	100%	100%	80%
15	Crate		1	1	0			100%	100%	100%
16	Backplane	Backplane for crate	1		2	\$300		0% Dubna	0%	0%
17	ADC			144	0		Provided by Chi	100%	100%	100%
18	Brick Skins		3					BNL	0%	0%
Strips										
19	SpRC	Strip readout card	32		40	\$6,400	Being designed	60% Dubna	0%	0%
20	StripCAR	Strip carrier board	2		2	\$800	Concept design	10% Dubna	0%	0%
21	FlexCables	Same as for pads	4		0			100%	100%	
22	Cover	Ceramic 62x62x0.4mm	32		32	?		BNL	0%	0%
23	Foil		32		32	?		BNL	0%	0%
24	FEM		3		0	?	2 tested, 2 spares fabricated	100%		
25	ProbeCard	Probe card for sensors	1		1		Manufacturer contacted, quotation requested	10% BNL	0%	0%
Test Beam										
26	SMMTester	Single sensor carrier with LEDs	6					Dubna	0%	0%
27	SpRC		4							
28	Mechanics		1m2					+		
29	FEM		2 ports	2		?		100%	50%	
30	HV systems		25x10uA			\$0	4 modules of Astakhov system or NIM modules from the pool	BNL	0%	0%
31	N3C	ColdFire MPU	4	2	2	\$320		100%	100%	

Color coding

	Full set is available
	Most of the items are available. The set is not complete.
	Work in progress on a non-critical part
	Critical part